Fisheries and Oceans Canada
Pêches et Océans Canada

Policy and Economics
Politiques et économique

ANALYSIS OF THE QUEBEC COASTAL REGIONS

IMPACT OF THE MARINE FISHERIES RATIONALIZATION PROGRAMS

QUEBEC REGION

Canada

102-05532/

STUDY OF THE QUEBEC COASTAL REGIONS

IMPACT OF THE MARINE FISHERIES RATIONALIZATION PROGRAMS

QUEBEC REGION

Fisheries and Oceans Canada

March 2002

PUBLISHED BY :

Policy and Economics Branch
Fisheries and Oceans
Quebec QC
G1K 7Y7

© Her Majesty the Queen in Right of Canada, 2002

Catalogue number Fs 66-5/157E
ISSN 0843-5626

Economic Analysis Report n° 157

Cette publication est aussi disponible en français

Table of Contents

1. Introduction 1

2. History of the Atlantic and Quebec Groundfish Fisheries 2

3. Rationalization of the Groundfish Sector 7

3.1 Importance of Groundfish in the Quebec Fisheries Industry 7
3.1.1 Primary Sector 7
3.1.2 Secondary and Tertiary Sectors 9
3.2 Rationalization Programs 10
3.2.1 Licence Retirement 12
3.2.1.1 Procedure 12
3.2.1.2 Results 13
3.2.2 Adaptation Measures 17
3.2.3 Economic Development Measures 18

4. Current Economic Impact of the Fisheries Industry in Quebec 20

4.1 Demography 20
4.2 Education 21
4.3 Activity Rate and Unemployment rate 21
4.4 Sources of Income 22
4.5 Sectors of Activity 25
4.6 The Magdalen Islands Fisheries Industry 27
4.6.1 Primary Sector 27
4.6.2 Secondary and Tertiary Sectors 29
4.7 Gaspé Fisheries Industry 30
4.7.1 Primary Sector 30
4.7.2 Secondary and Tertiary Sectors 32
4.8 The North Shore Fisheries Industry 33
4.8.1 Primary Sector 33
4.8.2 Secondary and Tertiary Sectors 35
4.9 The Workforce and the Primary Sector of the Fisheries Industry 36
4.10 Age of the Workforce and the Primary Sector of the Fisheries Industry 38
4.11 The QSI Survey 39

5. Communities Most Affected by the Groundfish Crisis 40

6. Assessing the Evolution by Sector 44

7. Perspectives 46

8. Conclusion 48

Lexicon 49

Annex : Chart of Groundfish Fishing Areas 51

1. INTRODUCTION

The purpose of this study is to provide a description of the evolution which took place in the fisheries industry in the Quebec maritime regions in the past decade in the wake of important changes caused by the decline of the main Atlantic groundfish stocks.

This study originated from the national mandate of the Department of Fisheries and Oceans (DFO) and the need to assess the results of the various rationalization programs created in the wake of the groundfish crisis. This mandate included a review of the groundfish industry in each region before the moratorium was promulgated as well as an assessment of the impacts brought about, qualitatively and quantitatively, by the various rationalization programs, particularly the Atlantic Groundfish Licence Retirement Program (AGLRP). It is of paramount importance to assess the impact, on the groundfish fisheries activities, of retiring competitive fishing regime licences as well as those under the individual transferable quota (ITQ).

DFO Quebec was also firmly committed to the idea of including a description of the Quebec fisheries industry prior and after the moratorium with the purpose of assessing the health of the sector. Basing the analysis on Statistics Canada Special Compilation Services, it was possible to review several variables specific to each region such as demography, employment, activity sectors, as well as the general state of the economy in the Quebec maritime regions.

Moreover, this study dwells on the future of the Quebec fisheries industry. Furthermore, various initiatives capable of inciting change in the guiding principles and actions of the industry and the DFO are also outlined herein. (Atlantic Fisheries Policy Review, Integrated Fisheries Management Plan, etc.). It is our view that this document will promote better understanding of the changed context brought about by the moratorium on Northern cod, Gulf cod and Unit 1 redfish.

2. HISTORY OF THE ATLANTIC AND QUEBEC GROUNDFISH FISHERIES

The 70's

For a long time, groundfish was the key engine of the fisheries industry in Atlantic Canada. An important fishery harvesting various species of groundfish was practised by fishermen in Quebec and, until the early 90's, they represented more than half of the landed fish, all species included. Besides, at the fish processing level, groundfish required more manpower than any other species, mainly because of the type of product required and the large volumes processed.

In the 70's, this fishery was characterised by a free access to a relatively abundant resource, which means that the only thing fishermen needed to do to fish was to apply for a licence to practice fishing. That was before access was restricted in 1976.[1] In the early 70's, the resource was in the throes of a cyclical slump and, at the same time, discussions were taking place to extend the exclusive economic zone (EEZ) of the North Atlantic Fisheries Organisation (NAFO) member-countries to 200 miles. In 1977, the 200-mile limit was established.

[1] Management of Marine Fisheries in Canada, L.S. Parsons, 1993

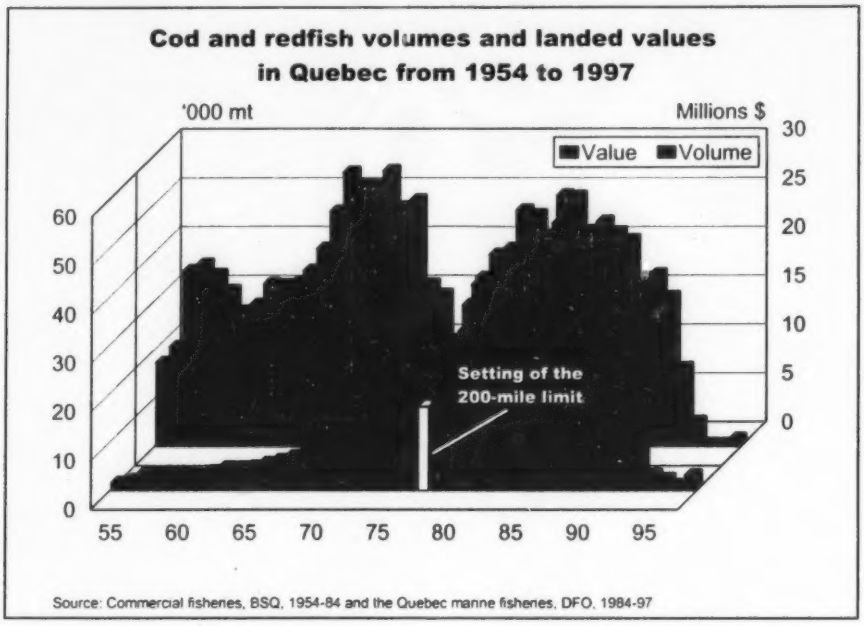
The 200-Mile Zone and the Kirby Report

Once the EEZ's creation of the 200-mile limit was implemented, it gave Canadian fishermen access to additional quantities of groundfish. From 1977, the quota accessible to Canadian fishermen increased dramatically, which resulted in a fierce race to catch and process the resource. The number of fishermen multiplied, and so did the number of fish processing plants. The competitive catch regime required huge investments from fishermen who had to acquire the necessary technology to supersede their competitors, or barely manage to stay afloat without losing their competitive edge over them. The capacity of fish processing plants to process fish also grew, when owners could afford to meet the expenses.

In 1982, the Atlantic Fisheries Task Force, chaired by Michael J. L. Kirby, handed over their report. At that time, this report already diagnosed that the pace of the catch and the processing sectors were well above their sustainable capacity. This over capacity was noticeable in spite of the 750 000 metric tonnes of groundfish for Atlantic Canada, including 420 000 metric tonnes of cod. The belief was that the expected quota increase in the years ahead would partially resolve the problem. However, according to the report, the groundfish fisheries seemed to be an underachiever in terms of potential, and it was commonly believed that on increased effort, especially at the marketing level, would partially redress the chronic issue of underfunding. At that time however, the context led the report to state a few basic hypotheses which later proved totally off-course : it stated that groundfish stocks would still grow steadily for several years (an optimistic assessment arising by the spreading of the canadian jurisdiction to the 200-mile limit). On the contrary however, the reverse took place. Instead of increasing as anticipated, stocks went into a steep decline. Yet fishermen and the industry stakeholders had invested along these optimistic forecasts of increasing groundfish stocks.

The Kirby report also included an important recommendation : the repatriation of the Quebec fisheries by the federal government. Following the publication of the report, the responsibility for managing the fisheries was entirely assumed by DFO which became the

sole competent body in this respect, in order to harmonize the frameworks of fisheries resource management for the Atlantic provinces as a whole.



Enforcement of the Moratorium

In the 80's, stocks have been fished more intensively, and declined slowly but steadily in the beginning of the 90's. The issues of overfishing and underfunding in the industry remained unresolved. A new fisheries management tool was put in place in 1989 : Individual Transferable Quotas (ITQ). This new mode of management should, in principle, stop the race for the resource, thereby slowing down the pace of investment attributable to competitive fishing. Fishermen were allocated a share of the overall quota (in the case of cod and Canadian plaice) based on their fishing history. In Quebec, 69 fishermen (essentially mobile gears) joined the ITQ Program. Furthermore, a processing plant held a enterprise allocation (EA) for redfish fishing for the offshore fishing business.

A few years later in 1992, groundfish fisheries were hit hard when a moratorium on the Northern cod fisheries was promulgated (Areas 2J and 3KL) after several consecutive years of declining stocks. In 1993, the same decision was made for the Gulf of St Lawrence stocks (Areas 4RS3Pn and 4TVn). Then in 1994, it was the turn of Unit 1 redfish.

The Cashin Report and the New Management Rules

On a parallel course, in November 1993, the Task Force on the Atlantic Fisheries Income and Adaptation, chaired by Richard Cashin, issued another report. This report stated the need to eliminate the issue of overfishing which characterised the groundfish fisheries. The way to do it was by extending a helping hand to the communities most deeply affected by the social and economic crisis which had been caused by three consecutive moratoria imposed on the main groundfish stocks. The recommendations included in this Report led to the development of rationalization programs in the groundfish fishery industry, jointly with the main stakeholders concerned.

In 1996, DFO set up a new licence issuance policy for the Atlantic to support the rationalization programs. This policy defined the concept of core fisherman, which granted professional recognition to fishermen who held key licences. The core fisherman concept aimed at maintaining the number of existing fishing businesses and, ultimately, at promoting an increasing degree of polyvalence of the fishing businesses.

In 2000, at the provincial level, the Quebec government set up a professionalisation Program for fishermen and crew helpers. Henceforth, people who wanted to work in the fisheries industries must attend a training Program before they could be granted a fishing licence or work onboard a fishing vessel.

The crisis which was gripping the groundfish industry not only led the federal government to set up rationalization programs for the industry, but also changed its approach regarding fisheries management. Rationalization programs allowed workers to

retire from the industry and reduce the fishing capacity. However, once this process was in place, it was importance that members of the industry who had elected to stay, especially at the catch level, would be involved in economically viable activities. It is with this aim in view that co-management agreements were established with the most profitable Gulf fleets, particularly with Area 12 crab fishermen as well as Quebec and New Brunswick shrimp fishermen. These agreements were based on in three basic principles : resource conservation, profitability of the fleets of traditional fishermen and no permanent increase in the catch capacity.[2] When establishing these agreements, DFO encouraged members of the industry to be increasingly involved in the decision-making process related to fisheries management. Some members of the industry became also financial partners. These agreements also allowed the sharing of the fisheries economic benefits with non-traditional fishermen without endangering the financial viability of the traditional fleets. Such an approach therefore succeeded in attenuating the shock of lost income deriving from the closing of the cod and redfish fisheries while avoiding a permanent increase of the fishing effort for stocks where co-management agreements were applicable.

The New Face of the Industry

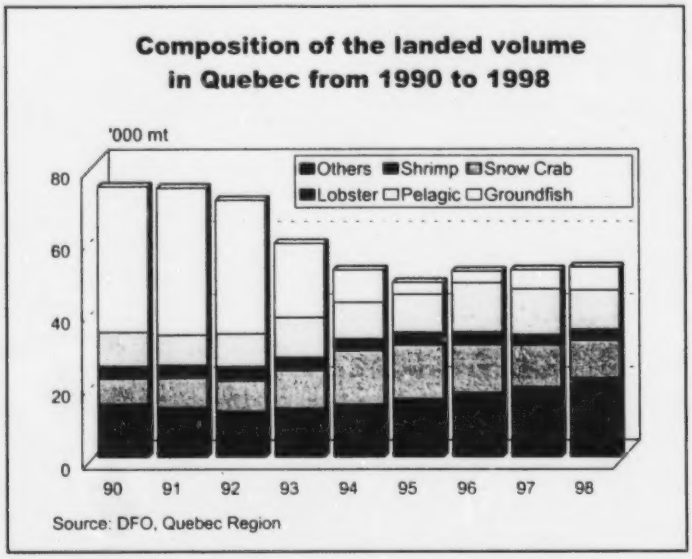
The industry profile has now undergone tremendous changes following the steep decline in the main groundfish stocks exploited by Quebec fishermen. All sectors, primary, secondary and tertiary, now include a dwindling number of businesses specialized in groundfish and one can observe the beginning of a trend towards increasingly high levels of polyvalence. These sectors are currently dominated by molluscs and crustaceans, as will be discussed down below in the updated profile of the industry by sector.

[2] Co-management in the snowcrab fisheries in the Southern Gulf of St Lawrence, DFO, 1997

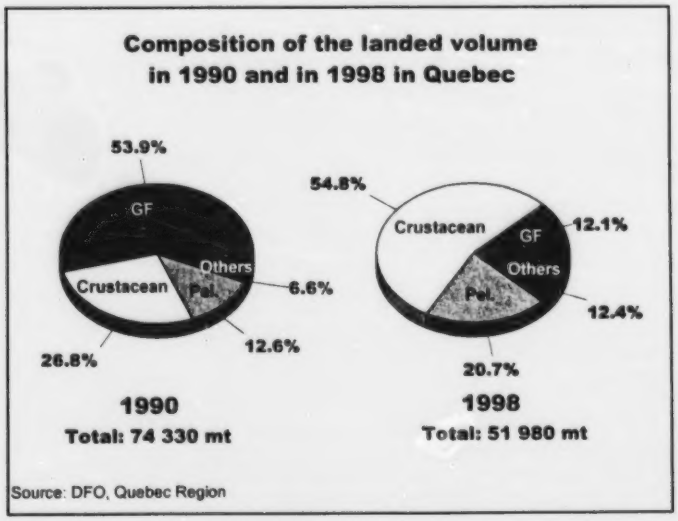
3. RATIONALIZATION OF THE GROUNDFISH SECTOR

3.1 IMPORTANCE OF GROUNDFISH IN THE QUEBEC FISHERIES INDUSTRY

3.1.1 Primary Sector



Groundfish fishermen in Quebec carry out their fishing activities in Area 4T and Area 4RS-3Pn (see Chart of fishing areas in the Annex). In those areas, several coastal communities lived to the tune of the fluctuating landings of various groundfish species, particularly cod and redfish. In 1992, there were 1297 groundfish licence holders in the Quebec Region. In those days, most of the landings were groundfish landings.

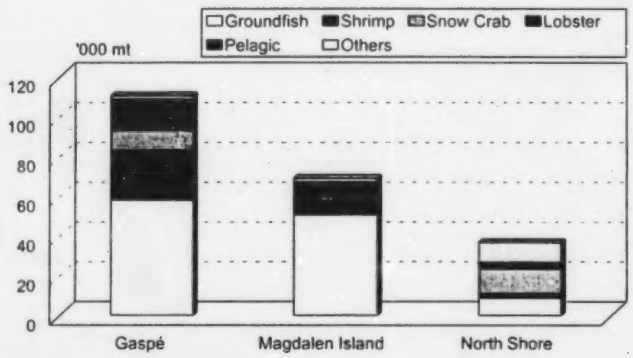


The volume of groundfish landings has declined dramatically since the moratorium was imposed on cod fishing in 1993, followed by the one on redfish in 1994. From 1990 to 1998, the relative share of groundfish landings spiralled down from roughly

54 % to about a mere 12 % of the overall landings, which dropped by 30 %. Since 1990, this diminution has been compensated by increasingly large quantities of shellfish (shrimp and snow crab) as well as pelagic fish although landings have not yet pulled back up to the overall levels of the volumes landed in the pre-moratorium years.

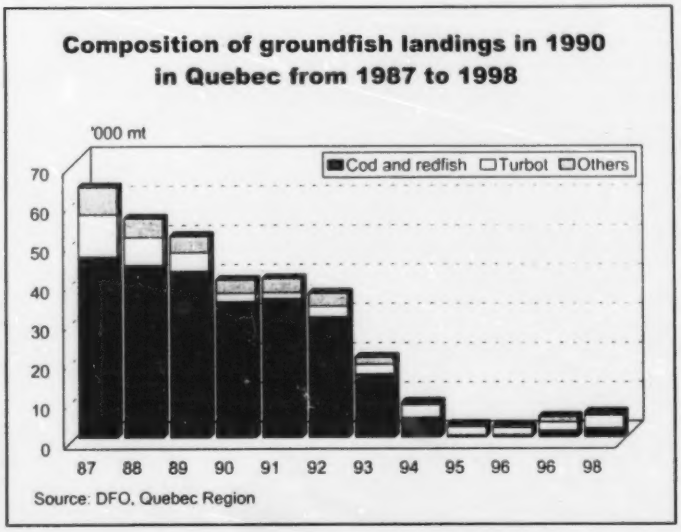
Some regions were hit harder than others by the enforcement of three consecutive moratoria. The Gaspé Region reported large quantities of cod landings, both in the northern and southern part. Several mono-industrial communities were economically dependent on groundfish catches and processing. The same is true of some communities in the Lower North Shore. In the Magdalen Islands, the most important employer in the industry, Madelipêche, which employed about 350 workers with processing operations limited to redfish, was forced to close.

Average composition of the landings volume per region from 1990 to 1992



Source: DFO, Quebec Region

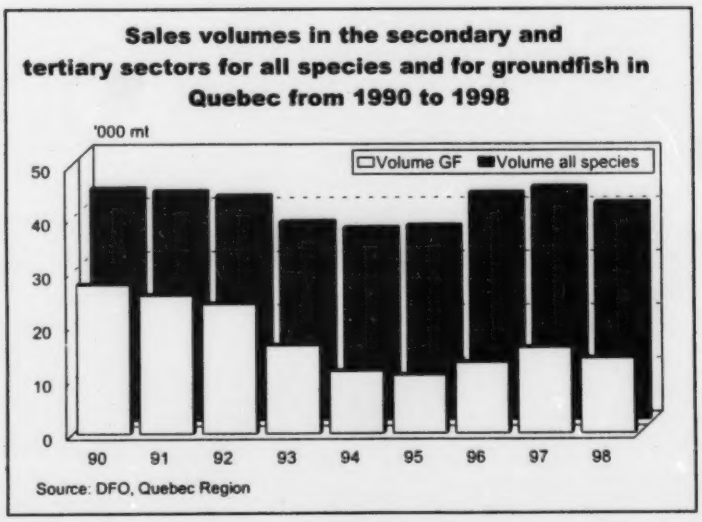
Some regions seemed to be a little bit better equipped against a slump in groundfish stocks because of the structure of their landings. For example, in the Gaspé Region, once in a while, large quantities of shrimp, snow crab or lobster catch would land amid groundfish catches. However, as seen herein, groundfish played a dominant role in each region. From 1990 to 1992, these species represented in average 24 % of the catch landed in the North Shore, 53 % of the catch landed in Gaspé and 73 % of the catch landed in the Magdalen Islands.



The main groundfish species landed were cod and redfish. They were followed by turbot (Greenland halibut) and other types of flatfish (plaice, Atlantic halibut). Besides, it has to be noted that catches of other groundfish species were frequent bycatches during fishing trips directed to cod, particularly in the case of mobile gear fishermen.

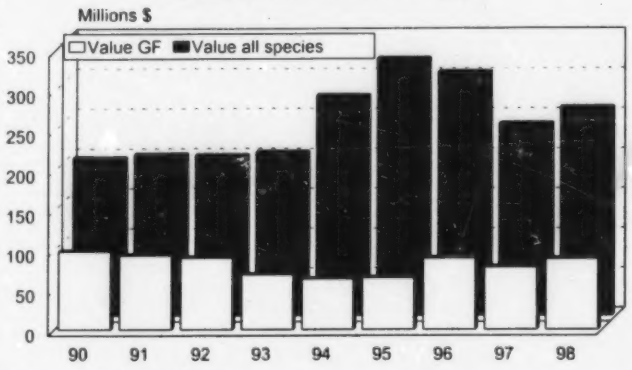
3.1.2 Secondary and Tertiary Sectors

Just like the primary sector, the secondary and tertiary sectors yielded a production largely dominated by groundfish.



The proportion of the volumes of groundfish sales in the secondary and tertiary sectors went down from 58 % in 1992 to 34 % in 1998, while the value of those sales decreased from 50 % in 1992 to 34 % in 1998. A few processing businesses which specialized in groundfish had to import the raw material in order to keep their plants running and active during the period when the moratorium was in force.

Landed values in the secondary and tertiary sectors for all species and for groundfish in Quebec from 1990 to 1998



Source: DFO, Quebec Region

This is the reason why the decline in groundfish products was not as acute as the drop in landings. The economic importance of the groundfish species under moratorium (such as cod and redfish) for the various Atlantic Regions generated the creation of government programs designed to assist these regions and these workers and rationalize this sector of the industry.

3.2 RATIONALIZATION PROGRAMS

In 1992, when the moratorium on Northern cod was promulgated, the federal government developed a Northern Cod Adjustment and Recovery Program (NCARP) which aimed at assisting workers who were affected by the enforcement of the moratorium; it also aimed at reducing the global production capacity of the industry. Some Lower North Shore fishermen were eligible for the Program but none of them took part in the rationalization process, since those who had access to Area 4RS3Pn cod were not yet under moratorium.

In 1993, the moratorium was extended to Gulf cod, with the result that, in the Atlantic provinces, groundfish fisheries industries were severely affected and shaken. In May 1994, the federal government launched The Atlantic Groundfish Strategy (TAGS). This Program had three aspects :

- Adaptation of the workforce, administered by Human Resource and Development Canada (HRDC);
- Reduction of the industry's capacity (catch and processing) administered by DFO, jointly with the provinces;

- Economic development activities jointly with the Atlantic Canada Opportunities Agency (ACOA) and the Federal Bureau of Regional Development for Quebec (BFDR(Q), now called Canada Economic Development (CED).

The first two aspects, which will be reviewed with more details later on, aimed at retiring industry stakeholders on a voluntary basis by encouraging them to agree to an early retirement, or through a retirement program of groundfish licences in exchange for a monetary compensation. However, the task of reducing the processing capacity was left to the provinces. It has to be noted that adaptation measures were changed, in large part, into measures of income support. The rapid development of these measures, prompted by the situation, caused this shift right from the start : income support was most urgently needed by individuals who were deeply affected by the crisis. The TAGS Program was initially planned to cover a period of five years but was prematurely terminated in August 1998, mainly by lack of funds.

In order to carry on the efforts to rationalize undertaken with the TAGS, another Program was established in 1998: the Fishery Restructuring and Adjustment Measures for the Atlantic Groundfish Industry (FRAM). This Program included three aspects : an Atlantic Groundfish Licence Retirement Program (AGLRP), several adaptation measures (early retirement, final TAGS payments and assistance to adaptation) and an economic development component. In all cases, the Program was based on three principles [3] :

- Voluntary program;
- Priority to fishermen who were members of the core group and to fishermen who were eligible for TAGS;
- Final departure from the fisheries industry.

[3] " Atlantic Groundfish Licence Retirement ", Fisheries and Oceans Canada, 1998-99

Each FRAM section had a department or body responsible for the project and had funds and a specific budget available and allocated to it. For Quebec, the picture was as follows :

Rubric	Department or Body responsible	Funding Quebec	Overall Funding
Licence retired	DFO	15M $	250M $
Adaptation measures	DHRC	25,5M $	380M $
Economic development	CED (Quebec) - APECA	6,2M $	100M $
	TOTAL	**46,7M $**	**730M $**

Source : Canadian fisheries adjustment and restructuring plan-e*valuation framework*, Goss Gilroy inc., 2000

A large number of stakeholders, in far greater numbers than for TAGS, took advantage of this latest program to leave the industry. Because of the reduced hope of a quick increment of stocks, which was becoming less and less probable, many fishermen wanted to take advantage of this last program to leave the fishing industry. People eligible for TAGS had at the time resorted to income support measures instead of leaving the industry, often with the hope that fish stocks would rebuild in the short or long term.[4]

3.2.1 Licence Retirement

3.2.1.1 Procedure

The two programs of fishing licence retirement (TAGS and AGLRP) allowed many fishermen to retire from the industry. Such programs aimed at rationalizing the harvesting sector drastically by reducing the number of groundfish specialists.

In the case of the TAGS Program, an Adaptation Council was established in order to evaluate the offers of retirement submitted by fishing licence holders. The Committee, having assessed these offers, along certain specific criteria, would then decide on the

[4] " Evaluation of The Atlantic Groundfish Strategy ", Final Report (TAGS/HRDC), March 1998

fisherman's eligibility. Later on, the Committee made recommendations to the Minister of Fisheries and Oceans regarding the offers which could be accepted.

As to the AGLRP, it included a reverse auction process similar to the one used by TAGS. An Advisory Committee, which included DFO representatives, the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec as well as members of the industry would review offers made by licence holders, taking into account the specificity of each fishing business (fishing gear, quota or fishing history attached to the licence). The Committee would then make their recommendations to the Regional Director General who had the final decision-making power.

3.2.1.2 Results

In 1992 prior to the first moratoria, there were 1297 groundfish licences for the Quebec Region. This number dropped to 962 in 2000, a 26 % decline. The federal government monitored the buy-back of 150 licences in the Region, out of which 129 were bought back within the framework of the AGLRP. The remaining 185 licences are no longer active following the early retirement of the licence holders, or simply due to a licence withdrawal following changes in the Atlantic Fisheries Licensing Policy in 1996, or by natural attrition.

Licences 1992[5]	**Total number of licences :**		**1 297**	
Licences 2000	**TAGS**	**AGLRP**	**Total**	**Variation 2000/1992**
Licences retired	21	129	150	
Early retirement	9	5	14	
Licensing policy	-	-	171	
TOTAL 2000	**Core : 904**	**Non core : 58**	**962**	**- 26 %**

[5] The core fisherman concept did not exist in 1992.

Each FRAM section had a department or body responsible for the project and had funds and a specific budget available and allocated to it. For Quebec, the picture was as follows :

Rubric	Department or Body responsible	Funding Quebec	Overall Funding
Licence retired	DFO	15M $	250M $
Adaptation measures	DHRC	25,5M $	380M $
Economic development	CED (Quebec) - APECA	6,2M $	100M $
	TOTAL	**46,7M $**	**730M $**

Source : Canadian fisheries adjustment and restructuring plan-*evaluation framework*, Goss Gilroy inc., 2000

A large number of stakeholders, in far greater numbers than for TAGS, took advantage of this latest program to leave the industry. Because of the reduced hope of a quick increment of stocks, which was becoming less and less probable, many fishermen wanted to take advantage of this last program to leave the fishing industry. People eligible for TAGS had at the time resorted to income support measures instead of leaving the industry, often with the hope that fish stocks would rebuild in the short or long term.[4]

3.2.1 Licence Retirement

3.2.1.1 Procedure

The two programs of fishing licence retirement (TAGS and AGLRP) allowed many fishermen to retire from the industry. Such programs aimed at rationalizing the harvesting sector drastically by reducing the number of groundfish specialists.

In the case of the TAGS Program, an Adaptation Council was established in order to evaluate the offers of retirement submitted by fishing licence holders. The Committee, having assessed these offers, along certain specific criteria, would then decide on the

[4] " Evaluation of The Atlantic Groundfish Strategy ", Final Report (TAGS/HRDC), March 1998

fisherman's eligibility. Later on, the Committee made recommendations to the Minister of Fisheries and Oceans regarding the offers which could be accepted.

As to the AGLRP, it included a reverse auction process similar to the one used by TAGS. An Advisory Committee, which included DFO representatives, the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec as well as members of the industry would review offers made by licence holders, taking into account the specificity of each fishing business (fishing gear, quota or fishing history attached to the licence). The Committee would then make their recommendations to the Regional Director General who had the final decision-making power.

3.2.1.2 Results

In 1992 prior to the first moratoria, there were 1297 groundfish licences for the Quebec Region. This number dropped to 962 in 2000, a 26 % decline. The federal government monitored the buy-back of 150 licences in the Region, out of which 129 were bought back within the framework of the AGLRP. The remaining 185 licences are no longer active following the early retirement of the licence holders, or simply due to a licence withdrawal following changes in the Atlantic Fisheries Licensing Policy in 1996, or by natural attrition.

Licences 1992[5]	**Total number of licences :**		**1 297**	
Licences 2000	**TAGS**	**AGLRP**	**Total**	**Variation 2000/1992**
Licences retired	21	129	150	
Early retirement	9	5	14	
Licensing policy	-	-	171	
TOTAL 2000	**Core : 904**	**Non core : 58**	**962**	**- 26 %**

[5] The core fisherman concept did not exist in 1992.

The effort to rationalize agreed on by the industry was relatively important in Quebec. Out of 150 groundfish licences which were bought back, 18 came from the fleet under IQT and 132 from the competitive fleet of vessels less than 65 feet. Given the quotas bought back from licences under ITQ, it is easier, at first, to assess the harvesting capacity retired from this fleet. In absolute terms, the biggest effort to rationalize was made by Quebec within this fleet.

Provincial distribution in % of cod ITQ in area 4T in 2000, mobile gears < 65 feet group B

Province	ITQ holders	ITQ retired	Total share	% Retired
Quebec	33.9	17.7	51.6	34.4
N.B.	15.3	10.4	25.7	40.4
N.S.	7.3	7.1	14.4	49.2
P.E.I.	6.5	1.8	8.3	21.9
TOTAL	63.0	37.0	100.0	37.0

Source: DFO, Quebec Region and Gulf Region

However, in relative terms, New-Brunswick and Nova Scotia had a relatively higher reduction rate in their catch capacity than Quebec. The fleet under ITQ for Area 4T cod had therefore more than 37 % of its quota retired. In comparison, 34 % of the Quebec fishermen's quotas were retired in Area 4T. New-Brunswick, Nova Scotia and Prince-Edward Island have rationalized respectively at a level of 40 %, 49 % and 22 %. Globally, licence holders under the IQT regime in the Gulf Region have sold roughly 48 % of their quota.

Provincial distribution in % of canadian plaice ITQ in area 4T in 2000, mobile gears <65 feet group B

Province	ITQ holders	ITQ retired	Total share	% Retired
Quebec	30.4	8.3	38.8	21.5
N.B.	15.6	11.6	27.2	42.5
N.S.	20.4	2.7	23.1	11.5
P.E.I.	8.4	2.6	11.0	23.8
TOTAL	74.8	25.2	100.0	25.2

Source: DFO, Quebec Region and Gulf Region

Concerning the Canadian plaice in Area 4T, more than 25 % of the fleet quota were bought back. As to the Quebec fleet, it rationalized at the level of 21,5 % under the provincial average of the fleet. And as to the provinces in the Gulf Region, their IQT holders sold around 28 % of their quotas.

In eight cases out of 18, fishing licences under ITQ bought back in Quebec included quotas from Area 4RS-3Pn. Quotas bought back from these licences were about 10 % of the quotas in this area for the ITQ licence holders based in Area 4ST. Furthermore, fishermen in Quebec also held 98,1545 % of the ITQ in this category (fishermen based on Area 4ST).

It is important to note that the quotas bought back by the federal government remained available to fishermen in the province where the quotas were bought back.

Considering Area 4T competitive fishing fleet, its overall size fell from 2754 to 2429 licence holders, a slump of 11,8 % from 1992 to June 2000.

Competitive groundfish fishing licenses bought per province in area 4T

Region	Province	Licences 92	Buy-Back	Other Buy-Back	Licences 2000	% Decrease
Quebec	Quebec	753	62	130	561	25.50
Gulf	*N.B.*	*744*	*12*	*nd*	*nd*	*nd*
	N.S.	*354*	*13*	*nd*	*nd*	*nd*
	P.E.I.	*903*	*11*	*nd*	*nd*	*nd*
	Total - Gulf	2001	36	97	1868	6.65
TOTAL 4T		**2754**	**98**	**227**	**2429**	**11.80**

Source: DFO, Quebec Region and Gulf Region

Most of the competitive fishing bought back licences retired were bought back in the Quebec Region, which means 62 licences out of 98 or 63 % of the licences. The 36 licences bought back in the Gulf Region were evenly divided among New-Brunswick, Nova Scotia and Prince-Edward Island.

Contrariwise, it should be noted that, the Gulf Region fleets generally included more polyvalent fishing units (with most being licensed to catch lobster) than the Quebec competitive fleet which included a larger number of specialized fishermen. Since there are more Quebec fishermen specialized in groundfish fishing, some fishermen may have felt that the latest Program was a greater incentive to get rid of their licences. Licences categorized as " Other retirements " included early retirements by groundfish licence holders, and licence retirements induced by amendments in the Atlantic Fisheries Licensing Policy. For the Gulf Region, 45 licences were added to those retired because of the development, in 1993, of the Policy Respecting Inactive Groundfish Licences (inactive licences were retired).

Competitive groudfish fishing licenses bought back per province in area 4RS-3Pn competitive <65 feet

Region	Province	Licences 92	Buy-Back	Other Buy-Back	Licences 2000	% Decrease
Quebec	Quebec	481	70	55	356	26 0
Newfoundland	Newfoundland	2122	605	393	1124	47 0
TOTAL 4RS-3Pn		2603	675	448	1480	43.1

Source: DFO, Quebec Region and Newfoundland Region

In Area 4RS-3Pn, 70 licences were bought back in the Quebec Region, among those 67 were retired using the FRAM Program. The Early Retirement Program-me allowed 10 fishermen retirement, among them four within the FRAM. There were 45 licences retired due to non-renewal, cancellation or natural attrition. Globally, 26 % of the licences in the Region were retired between 1992 and 2000. Comparatively, the Newfoundland Region retired from their holders 47 % of its licences in this area. In the entire 4RS-3Pn area, 43 % of the licences were retired, that is 1 123 licences in all.

As an indication, one can observe that the mean total of reported landings attached to competitive licences represented 12,4 % of the average groundfish landed by fixed gear vessels less than 65 feet in the Quebec Region for the period from 1986 to 1992. The ratio was 9,7 % for Gaspé, 14,3 % for the North Shore and 25,6 % for the Magdalen Islands.

3.2.2 Adaptation Measures

Adaptation measures of the FRAM Program, which was administered by HRDC, included three options for the workers : a final lump sum payment, early retirement and adaptation measures.

The final lump sum payment was reserved for clients who were eligible for TAGS; it was equivalent to the benefits that clients would have received if the Program had continued till the anticipated date, in 2001. Licence holders or plant workers eligible for TAGS could opt for early retirement if they were 55 to 64 on December 31, 1998. Adjustment

measures would make it possible to give workers affected by the closing of the various groundfish fisheries all the necessary tools and resources they needed to leave the fishery industry, obtain and keep an employment in another sector of activity.

All these measures came straight out of what clients had known under the TAGS Program, with the exception of the final lump sum payment which was necessary since the TAGS was terminated in 1998 rather than in 2001 as originally planned.

For the TAGS and FRAM programs, the following table shows that 63 % of the workers who had opted for an early retirement hailed from the Newfoundland Region.

Early Retirement

TAGS Program		
	Fishermen and fisher helpers	Fish plant workers
Prince-Edward Island	1	43
Nova Scotia	66	49
Quebec	17	110
FRAM Program		
Newfoundland	384	939
Prince-Edward Island	0	40
Nova Scotia	72	118
New-Brunswick	8	100
Quebec	17	126
Subtotal	***565***	***1525***
Total	**2090**	

Source : HRDC

Newfoundland was followed by Nova Scotia with 15 % and Quebec with 13 %. This lower percentage is explained by the fact that Quebec was the only province with an early retirement program in place before the moratorium. Workers chose this option in New-Brunswick and Prince-Edward Island, respectively in 5 % and 4 % of the cases.

3.2.3 Economic Development Measures

This aspect of the FRAM Program could be found again within the framework of the TAGS Program of 1995. These interventions were conducted via the FSQC Program (Maritime Quebec Special Fund) which had a budget amounting from TAGS Program of

12,9 millions $. The FRAM Program added 6,2 millions $ to this budget. Therefore the FSQC has been a continuous economic development Program ever since its creation in 1995.

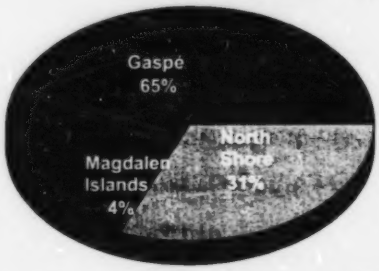
Right from the start, the Program was administered by the BFDR(Q), then by its successor, Canada Economic Development (CED). Two other departments were coaxed into taking a seat on the Program Executive Board : HRDC and DFO. The regional SADC (Société d'Aide au Développement des Collectivités) were asked to take part in the Coordination Committee which the mandate was to formulate recommendations to the Executive Board. The Executive Board was to act in such a way as to maximize the economic benefits of the Program in the coastal communities deeply affected by the groundfish crisis.

In March 2002, almost all the funds have been used and resulted in the funding of 421 projects.

4. CURRENT ECONOMIC IMPACT OF THE FISHERIES INDUSTRY IN QUEBEC

4.1 DEMOGRAPHY

Population distribution over the Quebec maritime regions - 2001



Estimate of the total population of the Quebec maritime regions in 2001: 302 420 individuals

Source: Statistics Canada, special compilation

In 2001, the total population in the three main Quebec maritime regions was about 302 420 inhabitants which, that is 4,2 % of the Quebec population. The Gaspé population alone represented 65 % of the Quebec maritime regions.

From 1996 to 2001, the population declined in each of the maritime regions, that is by 4 % in Gaspé, 3 % in the North Shore and 6 % in the Islands, compared to the 2 % rise recorded for the Quebec population as a whole over the same period. From 1996 to 1991, the population also decreased in each of the Quebec maritime regions, but not to the same extent as between 2001 and 1996, which was 1 % in Gaspé, 2 % in the Islands. No significant change was recorded in the North Shore. Over the same period a 2 % rise was reported in the Quebec population as a whole.

Data used in this section often refer to 1991 and 1996. These dates are those of the census years for which statistics are available.

Demographic variation, maritime regions and Quebec as a whole

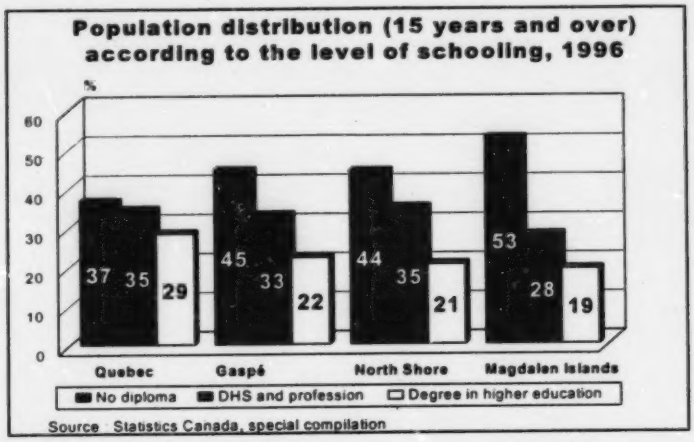
	Gaspé	North Shore	Islands	Quebec
1991/1986 Var.	-4 %	-1 %	-4 %	+6 %
1996/1991 Var.	-1 %	0 %	-2 %	+2 %
2001/1996 Var.	-4 %	-3 %	-6 %	+2 %

Source : Statistics Canada, special compilation

The key reasons for such a demographic slump in the Quebec maritime regions can be summarized by youth exodus to big urban centres, a low birth rate and a fast ageing regional population.

4.2 EDUCATION

As a whole, the population of the maritime regions has a lower level of schooling than the Quebec population as a whole. The ratio of individuals aged 15 and above who were without a university diploma was 45 % in Gaspé, 44 % in the North Shore, 53 % in the Islands, whereas this figure was only 37 % for Quebec as a whole. As to individuals who held a degree in higher education, the ratio was 22 % in Gaspé, 21 % in the North Shore, 19 % in the Islands compared to 29 % for Quebec as a whole.



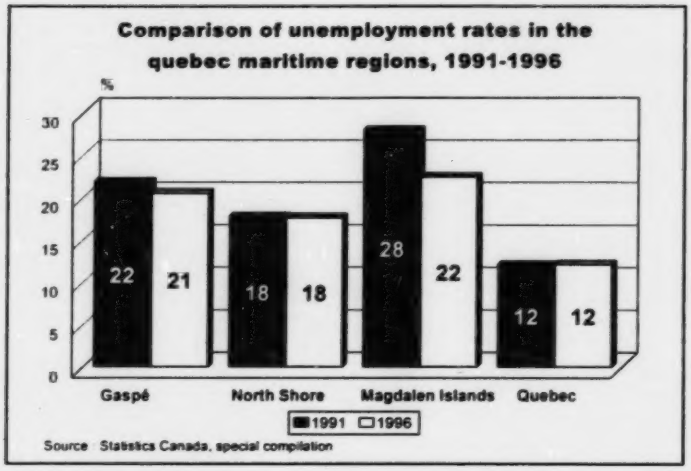
Between 1991 and 1996, the level of schooling improved in Gaspé, in the North Shore and in the Islands, just as it did in Quebec as a whole. The number of individuals without an academic degree lowered slightly, while the number of individuals holding a degree in higher education went up slightly.

4.3 ACTIVITY RATE AND UNEMPLOYMENT RATE

In 1996 the activity rate was 56 % in Gaspé, 63 % in the North Shore and 63 % in the Islands. With the exception of Gaspé where the activity rate was lower than the overall Quebec average, the North Shore and the Islands had an activity rate which slightly superseded the Quebec average of 62 %. However, one should mention that the activity rate includes both all the individuals who are employed, and those who are unemployed.

Consequently, one should refrain from concluding that the ratio of individuals on the job market in the Islands and in the North Shore was equivalent to the Quebec average.

In actual fact, in 1996, unemployment rate was 21 % in Gaspé, 18 % in the North Shore, 22 % in the Islands, that is slightly lower than twice the Quebec average which was 12 %. In referring to the definition of the activity rate (see lexicon) itself, one must therefore deduct that employment rate in Gaspé, in the North Shore and in the Islands was sharply lower than the Quebec average in 1996.



One should further mention that between 1991 and 1996, unemployment rate remained rather stable in Gaspé, in the North Shore and in Quebec as a whole. Among all maritime regions, it is only in the Islands that unemployment rate figures recorded a significant drop between 1991 and 1996: the rate dropped from 28 % to 22 %.

4.4 SOURCES OF INCOME

In 1996, the populations of Gaspé and the Islands enjoyed a total average income of 24 129 $ and of 24 121 $ respectively, that is less than the average total income of the North Shore population, which amounted to 28 703 $, and of Quebec as a whole, which amounted to 27 123 $. Between 1991 and 1996, the total average income substantially increased in all Quebec maritime regions and Quebec as a whole (Table 1).

TABLE 1

Income spread according to source for individuals as a whole, 1991 and 1996

	Gaspé		North Shore		Islands		Quebec	
	1991	1996	1991	1996	1991	1996	1991	1996
Average total income	18 784$	24 129$	22 638$	28 703$	18 562$	24 121$	22 391$	27 123$
Var. of income 96/91	+29 %		+27 %		+30 %		+21 %	
Sources of average total income								
Employment income	77 %	85 %	86 %	90 %	73 %	77 %	87 %	92 %
Transfer payments	23 %	15 %	14 %	10 %	27 %	23 %	13 %	8 %
Sources of transfers								
Employment insurance	36 %	63 %	38 %	62 %	58 %	78 %	25 %	45 %
Others	64 %	37 %	62 %	38 %	42 %	22 %	75 %	55 %

Source : Statistics Canada, special compilation

In 1996, fishermen in each of the Quebec maritime regions (see Table 2) enjoyed an average total income higher than the entire population of their respective region and the population of Quebec as a whole (see Table 1). Fishermen in Gaspé, the Islands and the North Shore earned an average total income of 27 512 $, 29 383 $ and 30 087 $ respectively. Between 1991 and 1996, fishermen's average total income increased in all the Quebec maritime regions : 53 % in Gaspé, 50 % in the North Shore and 55 % in the Islands (see Table 2). The relatively high total average income in the North Shore can be explained by the high total average incomes of the Higher and Mid North Shores in contrast with the Lower North Shore.

TABLE 2

Income spread according to source for the primary sector of the fisheries industry, 1991 and 1996

	Gaspé		North Shore		Islands	
	1991	1996	1991	1996	1991	1996
Average total income	17 979 $	27 512 $	20 042 $	30 087 $	18 969 $	29 383 $
Var. of income 96/91	+53 %		+50 %		+55 %	
Sources of total average income						
Employment income	62 %	69 %	63 %	71 %	60 %	65 %
Payments of transfers	38 %	31 %	37 %	29 %	40 %	35 %
Sources of transfers						
Employment insurance	84 %	71 %	82 %	76 %	89 %	85 %
Others	16 %	29 %	18 %	24 %	11 %	15 %

Source : Statistics Canada, special compilation

In 1996, workers in the secondary sector of the fishery industry (see Table 3) had a total average income much lower than the average of their respective region (see Table 1). In 1996, the total average income of fishermen in the North Shore, the Islands and Gaspé was respectively 15 309 $, 17 762 $ and 19 138 $. Between 1991 and 1996, the workers' total average income in the secondary sector of the fishery industry increased significantly in Gaspé and the North Shore, but got down in the Islands : 22 % in Gaspé, 40 % in the North Shore and -2 % in the Islands (see Table 3). In this last case, one may think that the impact of the closing of the Madelipêche plant, after the promulgation of the moratorium on redfish fishing, was a very decisive factor. This plant practically carried out its operations all year round.

TABLE 3

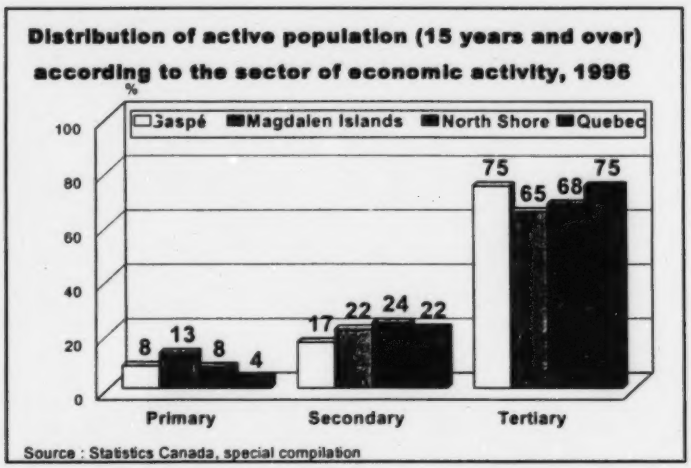
Income spread according to source for the secondary sector of the fishery industry, 1991 and 1996

	Gaspé		North Shore		Islands	
	1991	1996	1991	1996	1991	1996
Total average income	15 756 $	19 138 $	10 973 $	15 309 $	18 149 $	17 762 $
Var. of income 96/91	+22 %		+40 %		-2 %	
Sources of total average income						
Employment income	60 %	62 %	59 %	62 %	65 %	55 %
Transfer payments	40 %	38 %	41 %	38 %	35 %	45 %
Sources of transfers						
Employment insurance	84 %	80 %	86 %	82 %	90 %	79 %
Others	16 %	20 %	14 %	18 %	10 %	21 %

Source : Statistics Canada, special compilation

A substantial part of the total average income of the secondary sector workers in the fisheries industry was generated by transfer payments in 1996 . With the exception of Gaspé and the North Shore where the ratio of transfer payments decreased slightly between 1991 and 1996, it should be noted that, in the Islands, it increased dramatically between 1991 and 1996 (see Table 3).

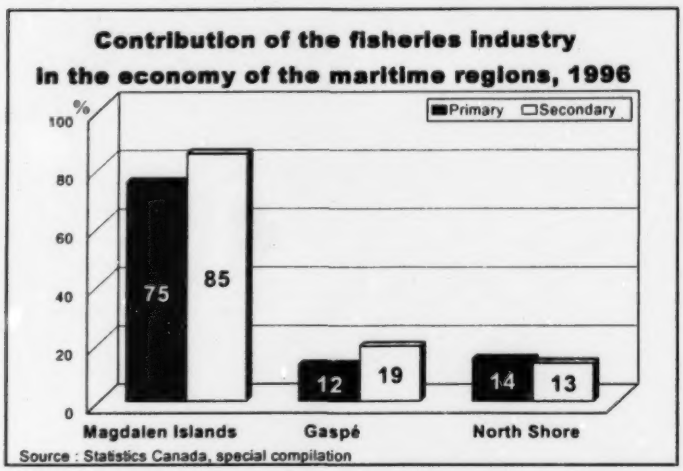
4.5 SECTORS OF ACTIVITY



Following a pattern that occurs repeatedly in Quebec as a whole, a sizeable part of the jobs in the Quebec maritime regions are in the tertiary sector. The secondary sector ranks second in the field of job creation in the maritime regions, with employment rates that compare very favourably with the Quebec average. As to the primary sector, the maritime regions generate a relatively considerable part of jobs when compared to the Quebec average : 8 % in Gaspé and the North Shore, 13 % in the Islands and 4 % for Quebec as a whole.

The primary and secondary sectors in the Islands are almost exclusively concentrated in the fisheries sector. The fisheries industry generates respectively 75 % and 85 % of the jobs in the primary and secondary sector. The secondary sector can also boast of about a hundred jobs thanks to the exploitation of salt mines. As to the tertiary sector, besides public services, the tourism industry plays a key role within this sector of the economy in the Magdalen Islands.

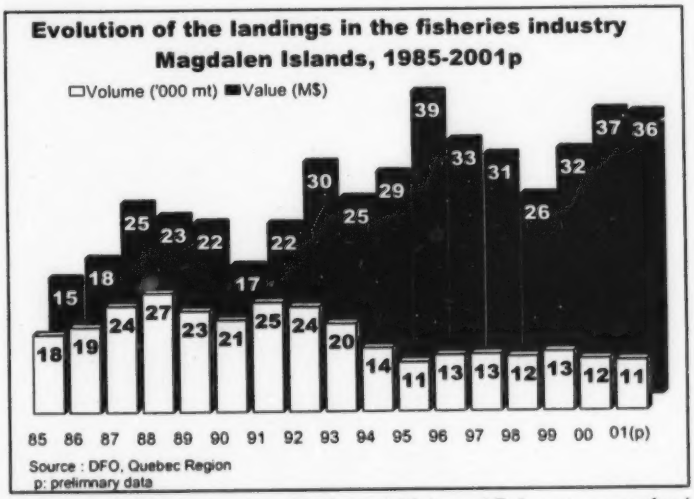
The primary and secondary sectors play a dominant role in the Gaspé economy, concentrating mainly on the exploitation and processing of forestry resources, fisheries resources and agricultural resources. The fisheries industry alone accounts respectively for 12 % and 19 % of the primary and secondary sector jobs. Public services and the tourism industry are the two main economic activities of the tertiary sector.



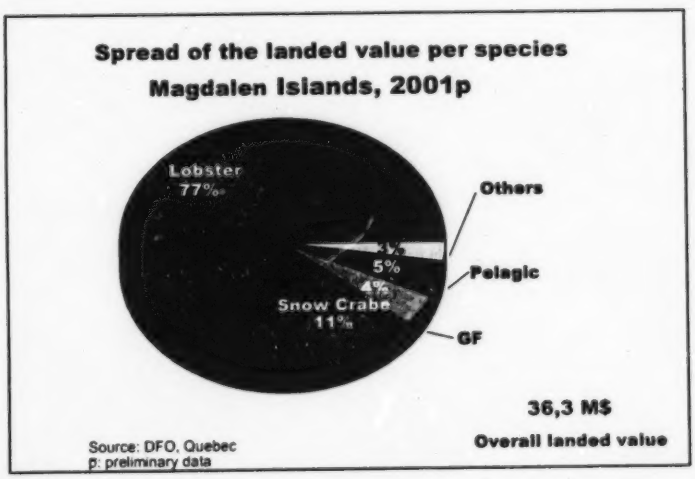
As in Gaspé, the North Shore region developed around the exploitation of natural resources at their earliest processing stage. Together with the fisheries, the exploitation of forests and mining, hydro-electricity, the manufacturing of paper and aluminium are the foundations of Gaspé's primary and secondary economy. The contribution of the fisheries industry to the job market in the primary and secondary sectors was a ratio of 14 % and 13 % respectively. In the past ten years, there has been an increasingly strong presence of the tourism industry in the tertiary sector with tourism products particularly designed to attract holiday-makers in search of eco-tourism and natural heritage sites. The fisheries industry is the engine of the economy in the Lower North Shore where the contributions of the fisheries sector to the job market was 90% and 97% respectively in the primary and secondary sectors.

4.6 THE MAGDALEN ISLANDS FISHERIES INDUSTRY

4.6.1 Primary Sector

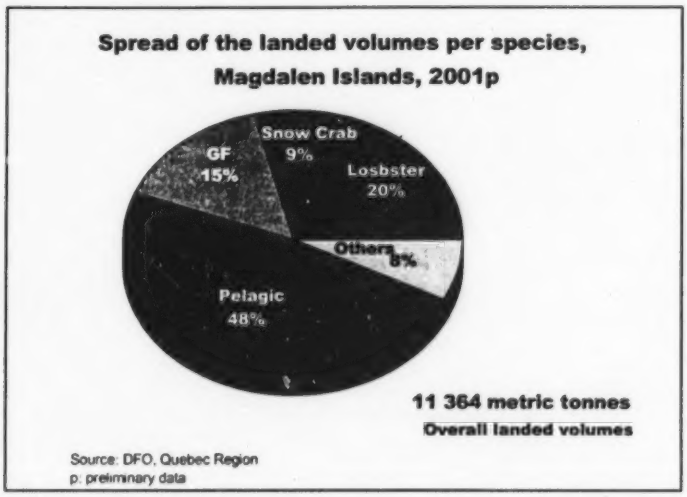


The landed value in the Magdalen Islands has remained at the same relatively high level in the past years, particularly thanks to lobster fishing. As to the volumes of landed catch, they went into a dramatic slump in the early 90's due to the moratorium on groundfish fisheries. Before 1994, redfish was caught in huge quantities and, year in year out, contributed 50 % to all the Magdalen Islands catches.



Preliminary data for 2001 indicate that lobster ranks first in the Magdalen Islands catches with 77 % of the overall landed value, that is 28M $. The Islands lobster represents more than 65 % of the overall landed value of lobster in Quebec. Snow crab ranks second with a landed value estimated at 4,1M $. Preliminary figures for the 2001 landings were estimated at 36,3M $ for the period from January to October, which made 2001 the third best year ever in the past 15 years.

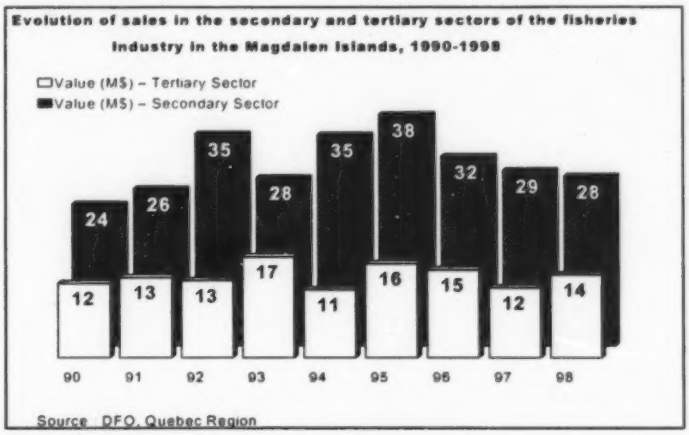
As to groundfish and pelagic fish, they represented respectively 4 % and 5 % of the overall landed value in the Islands. From 1990 to 1992, groundfish represented an average of 27 % of the landed value. Compared to 2000, the landed value of pelagic fish catches recorded a significant increase in the range of 25 % which was attributable to an increase in mackerel catches. In 2001, mackerel stocks were larger and was composed of more marketable size mackerels.



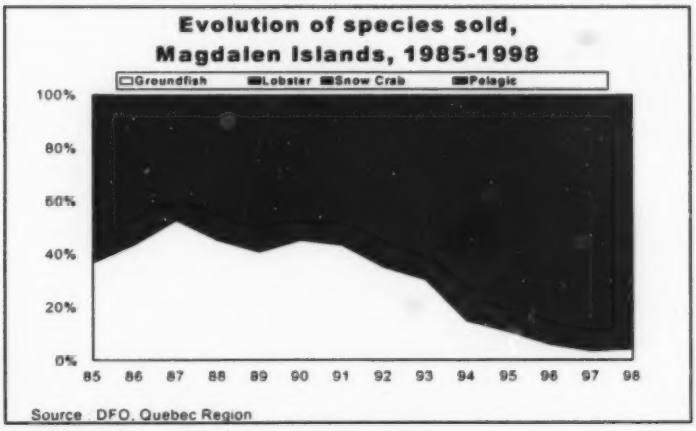
Pelagic fish rank first among the landed species in the Magdalen Islands with a 48 % ratio of the overall volume. Large quantities of pelagic fish catches are used as bait in lobster fishing as well as crab fishing.

Lobster and groundfish rank second and third with respectively a 20 % and 15 % of the overall volume. They are followed closely by snow crab which represents 9 % of the volumes of landed catch in the Magdalen Islands. It should be noted that, from 1990 to 1992, groundfish landings represent an average of 73% of the Islands landings. In the category " Others ", rock crab may be singled out under this section with landings in the range of 621 mt.

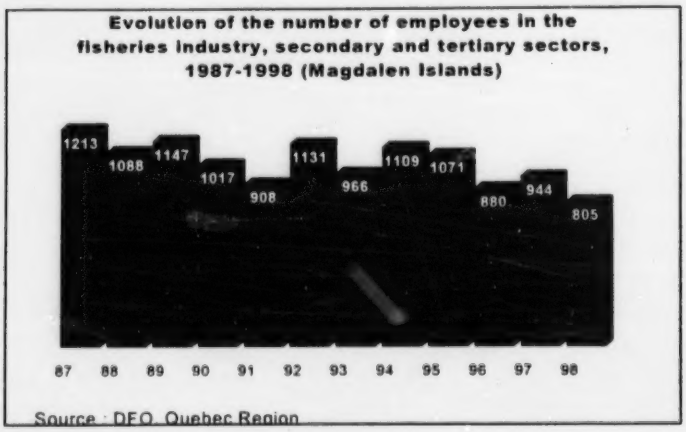
4.6.2 SECONDARY AND TERTIARY SECTORS



Despite the moratorium on groundfish fisheries, sales of marine products by businesses in the secondary and tertiary sectors (*see definitions in the lexicon*) are still at a level comparable to the one observed about ten years ago. The total sales reached a peak in 1995: they were then estimated at 54M $. In 1998, this figure went down to 42M $, out of which 28M $ were in the secondary sector and 14M $ in the tertiary sector. Hence, the sales of marine products in the Magdalen Islands represented 22 % of the total in the Quebec maritime regions.



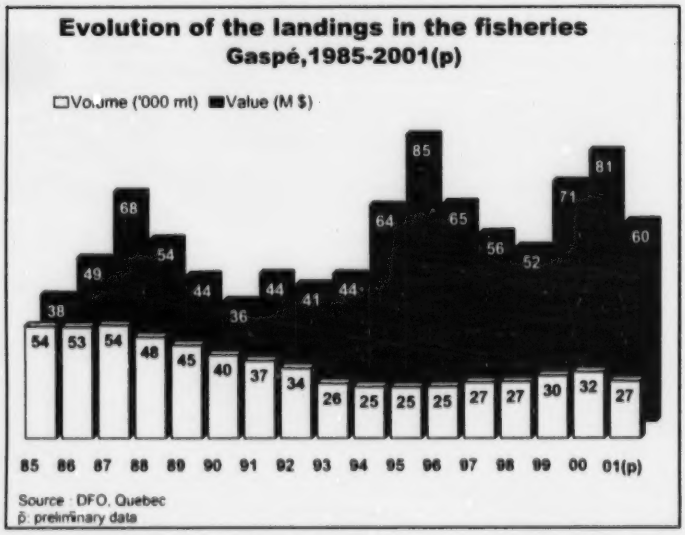
Since the late 1980's and, more specifically, since 1993, the shares of the sales of the various species have undergone considerable changes. Groundfish shares substantially decreased, sinking from 52 % in 1987 to 3 % in 1998, while lobster shares soared from 33 % to 53 % over the same period.



In 1998, the secondary and tertiary sectors in the fisheries industry employed roughly 805 workers in the Magdalen Islands, out of which 579 worked in the secondary sector while 226 worked in the tertiary sector. There has been a notable decrease of about 400 employees in these two fisheries sectors since 1987, the year when the figures of the workforce stood as high as 1 213 workers. It has to be noted that these figures represented the maximum number of employees and that most jobs were seasonal.

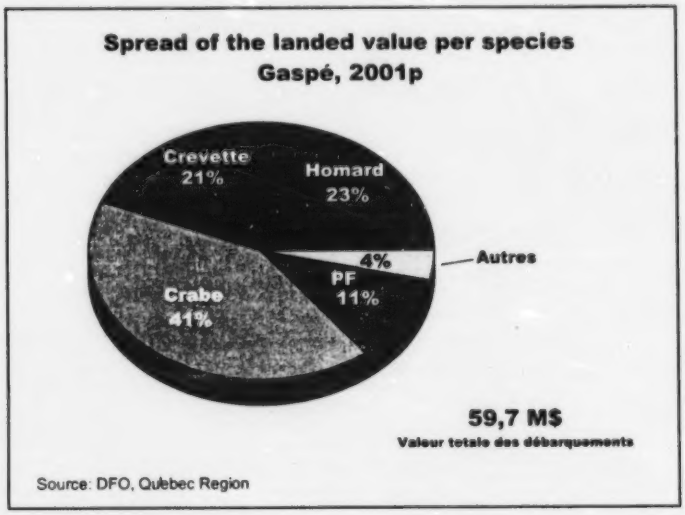
4.7 GASPÉ FISHERIES INDUSTRY

4.7.1 Primary Sector

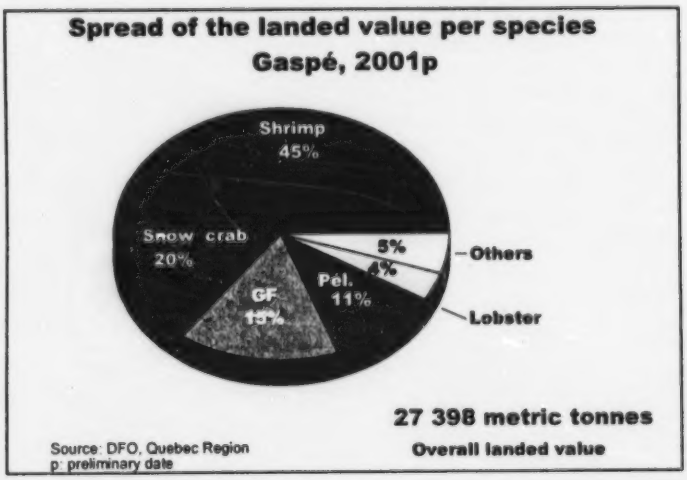


In Gaspé, the volumes landed went into a significant decline in the early 90's due to the groundfish moratorium. However the trend has been reversed since 1996 as a result of the volumes of shrimp catches. In 2001, there was a substantial decline in volumes and values landed, due to the fall of shrimp prices on the market.

The increase of landed value in the past years (1998 to 2000) may be partly explained by an increase in the shrimp catches. An increase in the quotas allocated for shrimp fishing combined with favourable landings may explain such an increase. The performance of the landed value is also attributable to snow crab which has benefited from substantially higher landing prices in the past years.



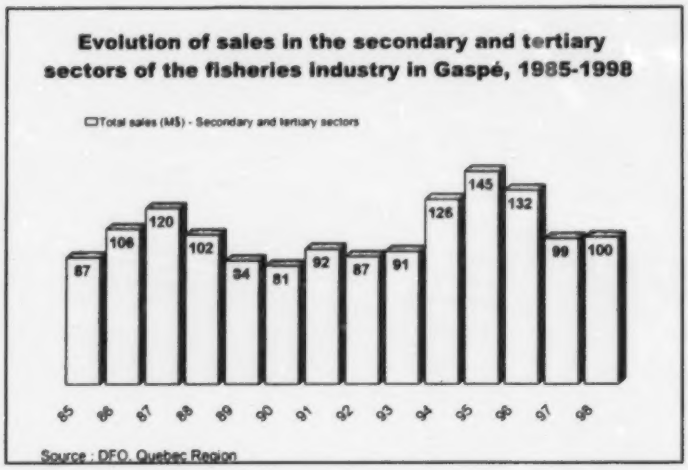
Snow crab ranks first for the landed value in Gaspé with about one third of the catches, that is 41 %. Lobster ranks second and also represents about a quarter of the landed value with 23 % of the overall catches. As to shrimp and groundfish, they rank third and fourth, respectively with 21 % and 11 % of the overall value of landed catch. Between 1990 and 1992, in Gaspé, groundfish used to represent an average of 37 % of the value of landed catch.



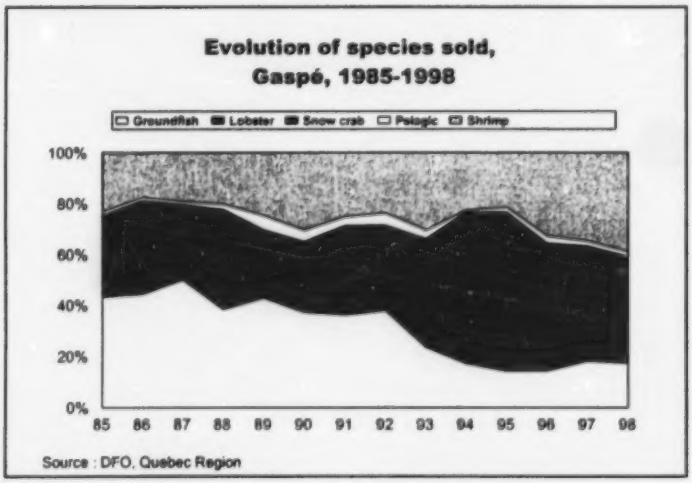
Shrimp represents the most important species landed in terms of volume, with almost half the total volume of catches in Gaspé, that is 12 201 mt. Snow crab and groundfish are also among the important species with catches in the range of 5 609 and 4 200 mt respectively.

Pelagic fish rank fourth for the total volumes of landed fish in Gaspé with 3 023 mt. The category " Others " consists mainly of rock crab catches.

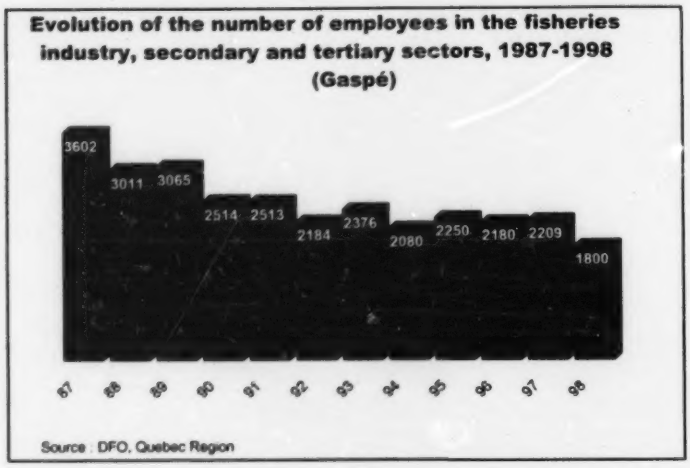
4.7.2 Secondary And Tertiary Sectors



In spite of the moratorium imposed on groundfish fishing, the sales of marine products through secondary and tertiary businesses (*see definitions in the lexicon*) have not dropped in Gaspé. In 1995, sales reached a peak when they were estimated at 145M $. In 1998, sales were estimated at 100M $. This figure represented 53 % of the total in the Quebec maritime regions.



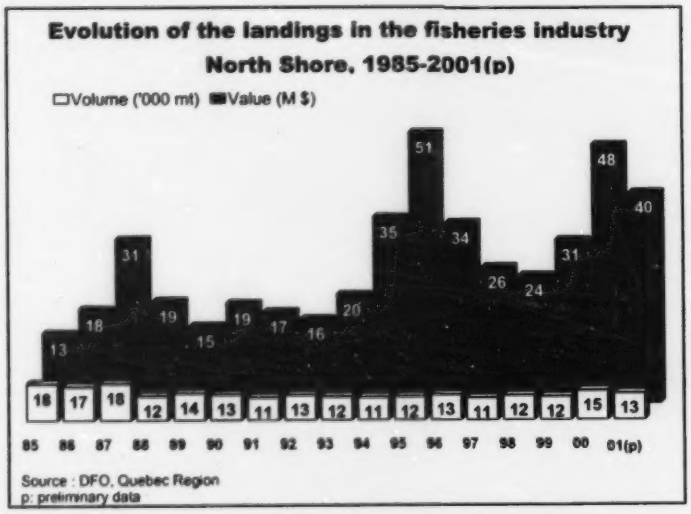
Since the late 1980's and more specifically since 1992, the share of the various species in the sales has undergone a dramatic change. The share of groundfish has diminished substantially, tumbling down from 46 % in 1987 to 17 % in 1998, while at the same time the shares of snow crab, lobster and shrimp soared from 52 % to 81 % over the same period.



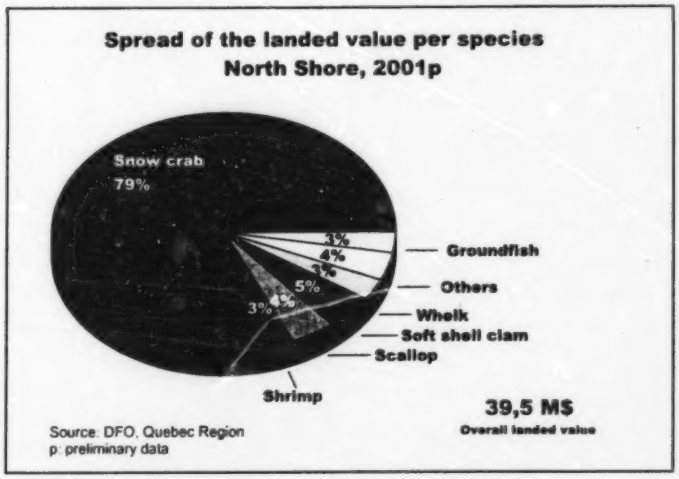
In 1998, the secondary and tertiary sectors of the fisheries industry employed about 1800 workers in Gaspé; among them 1509 worked in the secondary sector while 294 worked in the tertiary sector. The region has lost more than half of the workforce in the secondary and tertiary sectors since 1987, that is 1802. It is to be noted that these figures represent the maximum number of employees and that most of these jobs were seasonal.

4.8 THE NORTH SHORE FISHERIES INDUSTRY

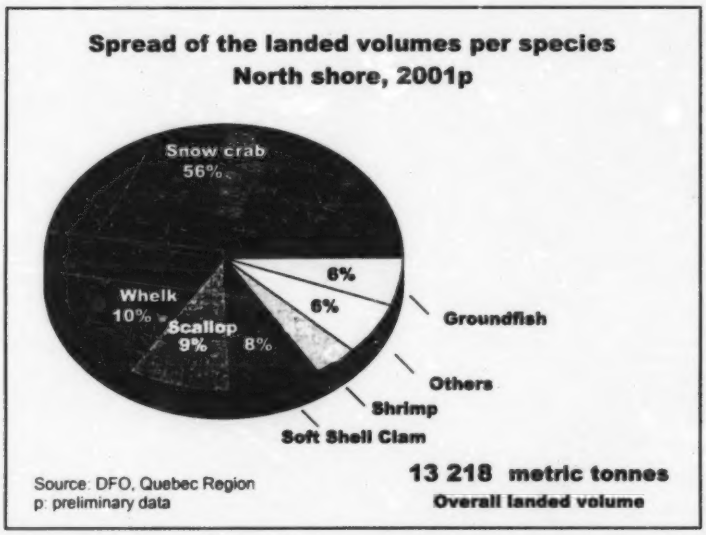
4.8.1 Primary Sector



Since the late 80's, the volume of landings has remained stable, varying between 11 000 and 13 000 MT excepted in 2000 when the landings totalled 15 mt. The landed value in the North Shore decreased in 2001 due to the fall of shrimp catches. In terms of value, the decline plummeted even more abruptly not only because of declining shrimp landings but also because of declining snow crab prices. Note that the value of landings in the Lower North Shore has remained at relatively high levels in the past years due to crab landings since crab is by far the main species caught in the Lower North Shore.

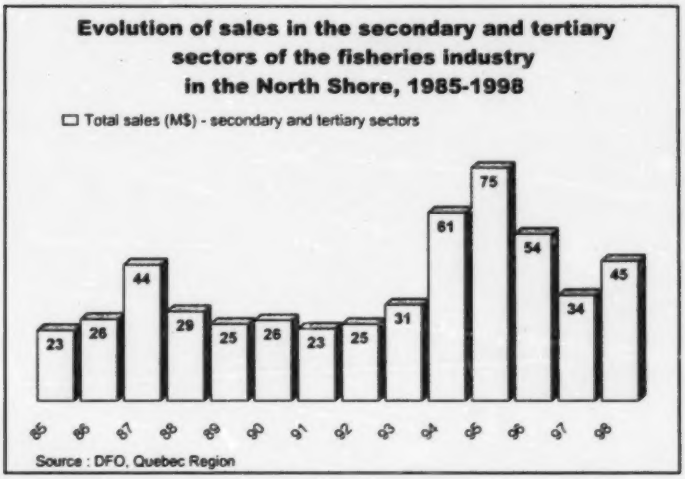


Snow crab ranks first among catches in the North Shore with 79 % of the overall value, that is 31 M $. Soft shell clam rank second in reported landings with a landed value share of 5 %. As a matter of fact, almost the entire soft shell clam catches (98 %) in Quebec are fished in the North Shore. Scallop ranks third with a landed value amounting to 1,7M $. Whelk, groundfish and shrimp follow respectively with 1,1M $, 1M $ and 1M $. Most whelk catches in Quebec are fished in the Lower North Shore, and total 88 % of the landings in Quebec. Groundfish represented 12 % of the landed value in average from 1990 to 1992.

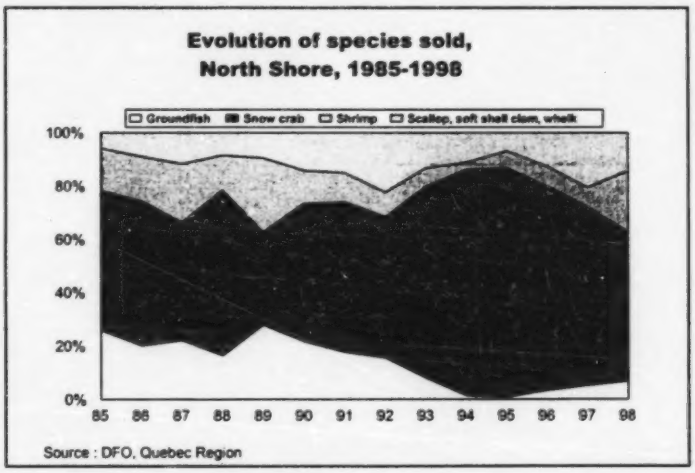


Snow crab ranks first among the North Shore species with a share amounting to 56 % of the total volume. In terms of volume, whelk and scallop rank second and third among the specie caught, with shares reaching 10 % and 9 % of the overall landed value. Soft shell clam ranks fourth, with 8 % of the shares of the volume of landed catch. Groundfish ranks fifth with landings totaling 761 TM, and shrimp total 542 TM. In the past years, shrimp has usually ranked second. It should be noted that groundfish represented in average 24 % of the North Shore landings from 1990 to 1992.

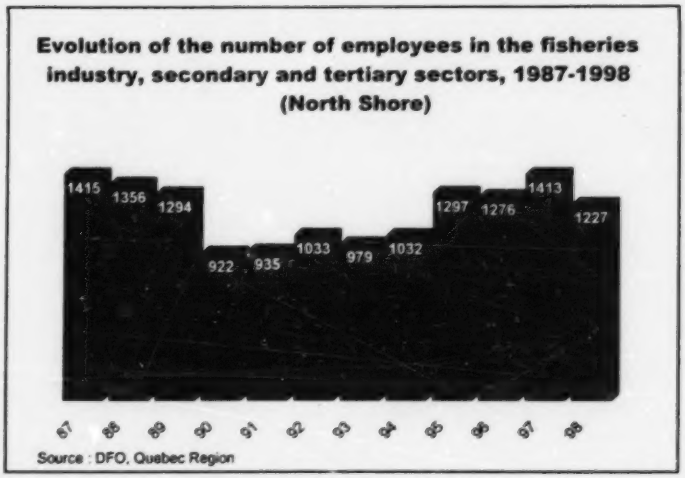
4.8.2 Secondary and Tertiary Sectors



Despite the moratorium on groundfish fisheries, the sales of seafood products through secondary and tertiary businesses (*see definitions in the lexicon*) have not diminished in the North Shore. Sales culminated in 1995; that year they were estimated at 75M $. In 1998, that figure sank to 45M $. This represented 24 % of the total in the Quebec maritime regions.

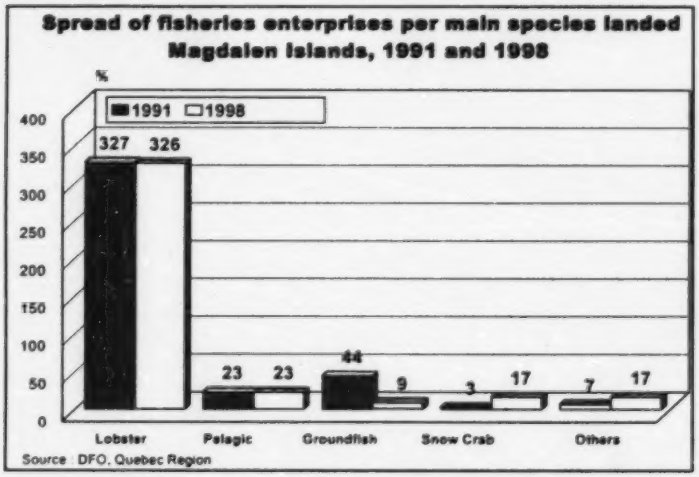


Groundfish has never played a dominant role in the North Shore secondary and tertiary industries. Contrariwise, snow crab is the species from which fish processing businesses derive and generate most of their income. In spite of that, since the late 1980, the share of the various species in the sales has undergone drastic changes. The share of groundfish has dramatically diminished, going down from 20 % in 1987 to 3 % in 1998, while the share of snow crab climbed from 41 % to 55 % over the same period.

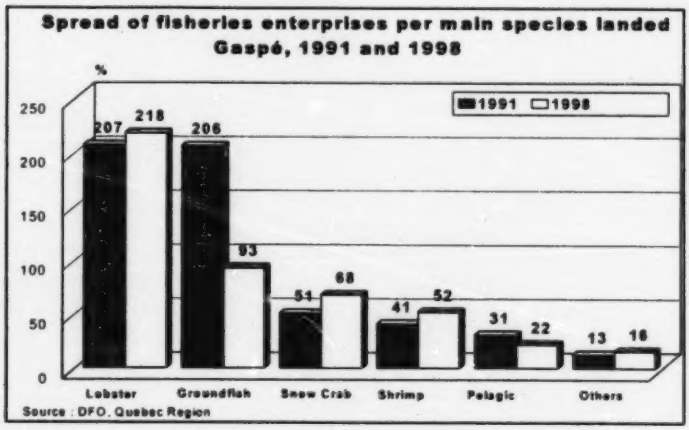


In 1998, the secondary and tertiary sectors of the fisheries industry employed about 1227 people in the North Shore, among them 958 in the secondary sector and 269 in the tertiary sector. Records showed a loss of about 500 employees in these two fisheries sectors between 1987 and 1991. Since then, the number of employees has gone up gradually to reach a level of employment very close to what was observed in the late 80's. It should be noted that these figures represented the maximum number of employees and that most jobs were seasonal.

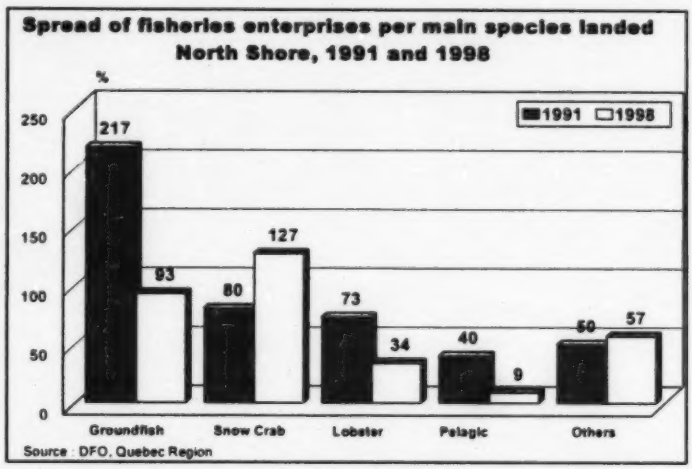
4.9 THE WORKFORCE AND THE PRIMARY SECTOR OF THE FISHERIES INDUSTRY



Lobster fishermen made up most of the stakeholders in the Islands primary sector, with a 86 % ratio of the number of fishermen as a whole. Out of a total of 392 businesses in 1998, one could find as many as 326 lobster fishermen, that is 83 % of the total. Between 1991 and 1998, the number of lobster fishermen remained stable, while the number of groundfish fishermen went into a free fall, from 44 to 9. Over the same period, the number of crab fishermen quintupled, rising from 3 to 17.



In Gaspé, losbter fishermen represented the majority of the fishing businesses in the region, that is 47 % of the overall number of fishermen. Grounfish fishermen ranked second. However, between 1991 and 1998, their number literally went into a free fall, dropping from 206 to 93, which represented a 55 % decline. Shrimp and lobster fishermen ranked third and fourth in the distribution of fishing businesses, with 68 and 52 fishermen respectively. Crabbers and shrimpers increased in numbers from 1991 to 1998.

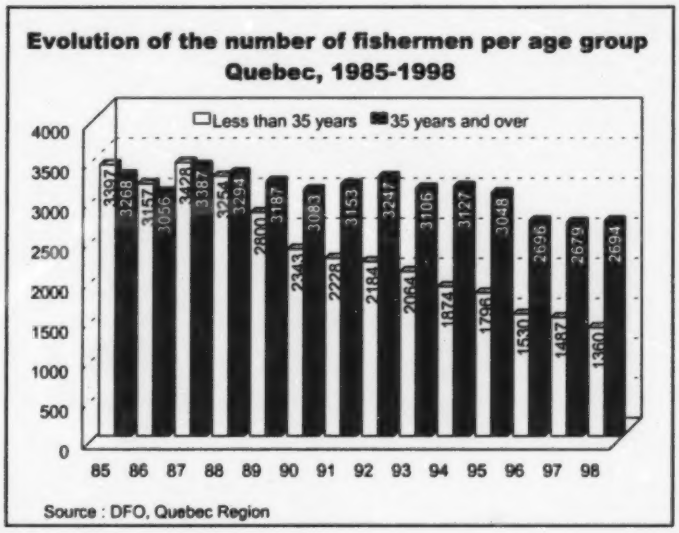


In the North Shore, crabbers represented the main fishermen's group with a ratio of 40 % of the entire fishermen's workforce. Although the number of groundfish fishermen went into a slump between 1991 and 1998, the latter represented the second most important group with 93 fishermen, that is 29 % of the total, despite a steep 57 % decline since 1991.

4.10 THE AGE OF THE WORKFORCE AND THE PRIMARY SECTOR OF THE FISHERIES INDUSTRY

A structural adjustment is now taking place in the field of human capital in the fisheries sector of the three Quebec maritime regions. Since the early 90's, the number of fishermen (including crew helpers) aged 35 has undergone a steady decline in the Islands and in Gaspé. A similar phenomenon was observed in the North Shore from the early mid-80's on, although a slight increase was recorded in 94 and 95, before another decrease set in and lasted till 1998.

In the Islands, the ratio of fishermen over 35 is increasingly substantial. This segment represented 64 % of all fishermen in 1998, while ten years earlier, that proportion had been as low as 48 %.



In Gaspé, the number of fishermen aged 35 and over was more or less the same between 1985 and 1993, whereas it went into a steep decline between 1993 and 1995, and thereafter remained stable. Just as in the Magdalen Islands, there is an ageing process now taking place in the fishermen's population in Gaspé. In 1985, fishermen aged 35 and over represented 48 % of the total, whereas in 1998, the ratio was 69 %.

In the North Shore, the number of fishermen aged 35 and over has been in a continuous downward trend: it has dropped from 235 to 72. Just as in the Islands and in Gaspé, the workforce is equally ageing. In fact, the ratio of fishermen aged 35 and over went up between 1985 and 1998 from 54 % to 63 % respectively.

In the long run, this ageing process phenomenon in the human workforce of the fisheries industry primary sector will contribute to make the issue of the leadership take-over even more pressing.

4.11 THE QSI SURVEY

The Policy and Economics Branch of the Quebec Region commissioned the Quebec Statistics Institute (QSI) to carry out a survey on the economic impact of the fisheries industry in Quebec.

From data provided by DFO for the year 1998, the QSI study demonstrated the direct and indirect effects on the workforce, the salaries, the value-added and the exports. The survey also included an estimate of the tax and parafiscal revenues derived from the industry's operations.

Based on the data collected, the results of this study by the QSI showed that the fisheries industry generated annual benefits amounting to 525,2 millions $, without grants or subsidies. Moreover, the fisheries industry generated 11 325 persons-year (salaried and other) which are the labour force directly and indirectly involved in the activities of the industry. The following table displays simulation results for the main variables defined in the " Survey on the Economic Impact of the Fisheries Industry in Quebec ".

Total of expenditures per simulation	Type of simulation	Impact of the production variables and imports					
		Salaried workforce	GDP in market prices				Imports
			Value added in factors costs			Indirect taxes minus subsidies	
			Salaries and wages before taxes	Gross income of individual businesses	Other gross income before taxes		
		(persons-year)	(in thousands of dollars)				
525 180	A	11 194	203 307	3 011	175 279	4 761	132 267

Note : This type of simulation refers to the way the simulated expenditures were taken into consideration in the inter-sectoral model. Type A refers to simulations of expenditures in the sector of the final demand.

5. COMMUNITIES MOST AFFECTED BY THE GROUNDFISH CRISIS

The previous chapter showed that the maritime regions as a whole were deeply affected by the decline in groundfish stocks. However, some communities were more affected than others, since they were more economically overdependent on groundfish fishing and groundfish processing.

In most cases, communities with a high number of groundfish fishermen usually processed their catches on their own territory. Therefore, plant workers also belonged to the same community. For many of these communities, moratoria on redfish and cod fishing have deprived fishermen and their families from their income, and also deprived plant workers.

Furthermore, this analysis demonstrates that rationalization programs put into place in the past years have retired some workers from the industry, not only from the primary but also from the secondary and tertiary sectors. The number of people in these communities who derived their income from this resource went into a considerable decline.

The following table is an illustration of the situation. Actually, for example, the municipality of Newport in southern Gaspé, was hit very hard. The same is true for the municipality of Havre-Aubert in the Magdalen Islands and the villages located between Old Fort and Blanc-Sablon in the Lower North Shore.

Average volumes landed associated with retired licences and overall average volumes landed per sector 1986-1992

Sector	Municipality	Bought-back lic.	% sectoral	Associated exp. (kg)	% sectoral	Overall exp. (kg)	% Bought-back exp.	Values of retired items
Gaspé								
	Newport	*12*	*21%*	*3 632 900*	*61%*			*3 119 435.00 $*
	Others	44		2 305 369				
	Total Gaspé	**56**		**5 938 269**		**27 183 000**	**21.8**	**8 987 446.00 $**
Magdalen Islands								
	Havre-Aubert	*17*	*71%*	*278 489*	*74%*			*1 923 849.00 $*
	Others	*7*		*95 839*				
	Total Isles	**24**		**374 328**		**17 205 000**	**2.2**	**2 365 349.00 $**
North Shore								
	Old Fort to Blanc Sablon	45	64%	241 596	50%			3 830 238.00 $
	Others	25		245 265				
	Total North Shore	**70**		**486 861**		**4 670 000**	**10.4**	**5 751 219.00 $**
Quebec Region		**150**		**6 799 458**		**49 058 000**	**13.9**	**17 104 014.00 $**

Gaspé

There is no doubt that, in the Quebec Region, the municipality of Newport was the most severely affected by rationalization programs in the primary sector. As an indication to this, basing the analysis on the average annual quantities of landed groundfish from 1986 to 1992, 53% of the volumes associated with licences bought back from Quebec originated from Newport. It is in this municipality that the most important inshore groundfish fleets in the Gulf were based. On top of fishermen who relinquished their licences, 18 workers opted for an early retirement within the FRAM framework (one in the primary sector and 17 in the secondary and tertiary sectors). Newport had also one of the most important groundfish processing plants, the Société des Pêches de Newport. The groundfish stocks decline, forced the company to close. Despite several unsuccessful attempts to rescue it, the plant is still inactive. However, other avenues are currently under study regarding the ultimate use of the plant facilities.

Magdalen Islands

The case of the Magdalen Islands is particular special. As seen on the Table above, most fishing licences which were retired came from Havre-Aubert where the largest concentrations of groundfish fisheries specialists were found. Within the framework of the FRAM Program, 19 workers opted for an early retirement (two in the primary sector and 17 in the secondary and tertiary sectors). Conversely, the table can only partially explain the situation created by the moratorium on the redfish fisheries, since the moratorium had harmful consequences on the municipalities of Central Island (municipalities of Cap-aux-Meules, Fatima and Étang-du-Nord) and landings came almost entirely from the business own vessels and quotas.

The Madelipêche plant processed important quantities of redfish. The plant had up to 350 workers on its payroll. Additionally, Madelipêche owned an inshore fleet of seven vessels (the only one of this kind in Quebec). Although the business kept both its licences and quotas (reduced to 0 to implement the moratorium), the fleet was sold. The plant has actually terminated its redfish processing operations since the moratorium came into force. It is the reason why 27 of its former workers in the primary and secondary sectors opted to retire early when the opportunity was offered to them from Île de Cap-aux-Meules within the framework of the Fishery Restructuring and Adjustment Measures Program (FRAM).

Since 1994, the owners of Madelipêche have tried to re-launch the plant operations without success: their efforts did not pay off because of the lack of available resources. However, the business has been processing seal for two years now, in partnership with two other businesses. Many government and private partners helped fund the project. According to estimates, the plant will be able to employ about 80 workers for four weeks, which is only a fraction of its capacity.

North Shore

In the North Shore, the Lower North Shore Sector was deeply affected. Specifically, the villages of Old Fort, Rivière St-Paul, Middle Bay, Brador Bay and Blanc Sablon which are all located within a 65-kilometre radius, were affected by the primary sector rationalization programs. Almost a third of the licences acquired within the framework of the two retirement programs came from these communities. Even if the average quantities landed associated with these licences cannot be compared to those landed in Newport for example, their number (45) is significant, given the fact that those areas are not densely populated and that economic opportunities are extremely scarce. It is highly probable that a family income was attached to each retired licence. There are very few alternatives available for Lower North Shore fishery workers who choose to leave the industry : 90 % of the primary sector jobs and 97 % of the secondary and tertiary sector jobs are fisheries related.

The number of fishermen who specialized in groundfish fishing in the Lower North Shore dropped sharply from 217 in 1991 to 87 in 2000. Most of these specialists, that is 54 fishermen, were based in the communities between Old Fort and Blanc-Sablon. The gross average income of the groundfish specialists was 9 165 $ in 1999 in the Lower North Shore.

Moreover, the Lower North Shore Region was affected by a decline in groundfish landings a few years prior to the enforcement of the moratorium on cod fishing. Only small quantities of fish could then be found along the coasts, with the effect that, for these fishermen, it somehow looked like a premature moratorium.

6. ASSESSING THE EVOLUTION BY SECTOR

The groundfish fishery crisis has considerably modified the picture of the fisheries industry in the maritime regions. The federal government, compelled to enforce a moratorium on the main groundfish stocks, had to set up rationalization programs for the industry in order to address the overcapacity problem. Generally speaking, workers specializing in the groundfish sector were caught in the rationalization programs (both at the primary sector level and at the level of the secondary and tertiary sectors). However, the issues raised by groundfish licence holders are still on the agenda for some specialists operating in this fishery, who have elected to continue to be part of the industry, in spite of the slow pace at which stocks are rebuilding.

The structure of the industry has therefore undergone changes due to the rationalization process. The resource managers' approach has also evolved since the enforcement of the moratorium. The DFO Emerging Fisheries Policy Access wants to favour groundfish specialists in the groundfish fisheries in order to make those fishermen more polyvalent. The Atlantic Fisheries Licensing Policy defined the concept of core fisherman and limited any increase in the intensity of the fishing effort by the fleets (in number of fishing units and capacity). DFO also opted for a co-management approach with the various fleets so as to encourage more involvement from the industry in the field of fisheries management. Furthermore, the net result of the temporary allocations system is to organize the fisheries in such a way that the economic benefits of the more lucrative fisheries profits the non-traditional fishermen while avoiding a permanent increase in the catch capacity.

The bill of health of the fisheries industry has improved significantly since the adoption of the various measures mentioned earlier. The industry is now dominated by molluscs and crustaceans, and the value landing has reached record highs in the past few years. In the Quebec Region, the structure of landed catch reveals a relatively diversified set of species among the shellfish caught, like lobster, snow crab and shrimp. Some of the overcapacity formerly found in the catch sector was eliminated and the financial health of

the businesses actively involved in fishing looks far better than it did in the past. The growing polyvalence of the fisheries businesses ensures that they are better protected from the fluctuations that may hit a resource or a stock.

7. PERSPECTIVES

Several challenges will be facing the industry and DFO in the years ahead. DFO is working at the Atlantic Fisheries Policy Review (AFPR). The last time the policy underwent such a review was in 1982. The review comes at the right time because the industry has since weathered numerous upheavals. The AFPR should lead to the adoption of strategic frameworks which will promote the improvement of the Atlantic fisheries management. It must rely on four interrelated sectors : conservation, economics and social viability, access to the resource, sharing formula and governance. The AFPR should provide for various stakeholders to be more fully integrated into fisheries resources management.

The Integrated Fisheries Management Plan (IFMP) is a good method to increase stakeholder integration into fisheries management. The IFMP applies the precautionary principle to the exploitation of fisheries resources. Such a plan involves consultations with fishermen's associations, as well a communal decision-making process. The IFMP must bring stability to fisheries management and could become a multi-year process. The IFMP is part of a larger integrated management initiative based on the *Ocean Act*. The integrated management principle prognosticates the management of the concerns of all users of vast expanses of water who include fishermen, aquaculture farmers, maritime cargo shippers or recreational fishermen, thereby allowing their activities to be carried out harmoniously.

In a world now dominated by the conservation concept and the precautionary principle, what happened to the main groundfish stocks which were under moratorium? In the case of the southern Gulf of St Lawrence cod in Area 4TVn, the stock was taken up by commercial fishing operations limited to 6 000 metric tonnes in 1999, 2000 and 2001. Generally speaking, scientists noticed a slow stock rebuilding, a process where the biomass of the reproductive stock has not shown any notable improvement since the

closing of the fisheries in 1993[6]. The conclusions are similar for fish stocks in Area 4RS3Pn where commercial fishing operations restricted to fixed gear were permitted again and resumed in 1997. One noted stronger year-classes, but recruitment still remains well below the average recruiting capacity that prevailed before the 90's[7].

As to Unit 1 redfish, it has been under moratorium since 1994. Surveys on the Redfish Industry (RIS) were conducted in 1998 to supplement the information collected by scientific surveys. Although a thorough cross-checking of the data was conducted, it has not been possible to track down important year-classes which could significantly contribute to commercial fishing. On the whole, perspectives for this stock will remain unfavourable in the near future[8].

Ultimately, DFO wants to promote a series of initiatives (like those mentioned earlier) which require close collaboration with the industry. The purpose of such initiatives is to generate long-term economic benefits generated by the exploitation of fisheries resources. Despite the fact that groundfish stocks which are still under moratorium are slowly rebuilding, the value of the landed catch has reached high levels. The thinning-out of the industry entailed by rationalization programs should lead us to take the first steps in that direction.

[6] DFO, 2000. Cod in the Southern Gulf of St Lawrence. DFO – Sciences, Stock Status Report A3-01 (2000)
[7] DFO, 2000. Cod in the Northern Gulf of St Lawrence in 1999. DFO – Sciences, Stock Status Report A4-01 (2000)
[8] DFO, 2000. Redfish Status Report in the Atlantic North-West : Redfish in Unit 1 and 2 and Division 30. DFO, Sciences. Stock Status Report A1-01 (2000).

8. CONCLUSION

Important structural changes generated by the groundfish crisis hit the Quebec maritime regions extremely hard. This study has made it possible to examine the important status of the groundfish industry in the various maritime regions. The effort agreed on by the regions to rationalize the industry was as important as the groundfish sector itself. This study has also made it possible to show how the crisis equally modified the DFO approach. First of all, rationalization programs had to be developed not only to reduce the capacity of the groundfish industry, but also to help the communities cope with the new situation. Several measures were then put into place to promote a far greater involvement of the industry in the decision-making process in the field of fisheries resources management.

Also, the health assessment of the Quebec fisheries industry generally leads us to believe that it has undergone considerable changes since the early 90's. Molluscs and crustaceans now have the upper hand and are the root causes of the rising income of the Quebec's fisheries workers which has increased at a much faster pace than the income of other workers in Quebec as a whole.

LEXICON

Active population : individuals who either had an occupation (on the job market), or were unemployed prior to the census.

Activity rate : the proportion of active individuals in the overall population.

Unemployment rate : the proportion of unemployed individuals who belong to the active population.

Fisheries primary sector : designates a sector which evolves essentially around fisheries activities.

Fisheries secondary sector : designates a sector involved chiefly at processing fisheries resources acquired from the primary sector. A business belongs to the secondary sector if the manufacturing sales of its main activities are higher than or equal to 50 % of the total sales.

Fisheries tertiary sector : designates a sector which involves activities related to the commercialisation and other services linked with the fisheries industry. A business belongs to the tertiary sector if sales posted in this sector are higher than or equal to 50 % of the total sales.

ANNEX – CHART OF GROUNDFISH FISHING AREAS